

101278

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SEQUENCE LISTING

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AP20 Rec'd PCT/PTO 11 MAY 2006

<110> ASTRAZENECA AB

<120> CARBOXYPERTIDASE U (CPU) MUTANTS

<130> LDG/101278

<160> 19

<170> PatentIn version 3.2

<210> 1

<211> 1269

<212> DNA

<213> Homo sapiens

<400> 1

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<210> 2

<211> 423

<212> PRT

<213> Homo sapiens

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<400> 2

Met Lys Leu Cys Ser Leu Ala Val Leu Val Pro Ile Val Leu Phe Cys
1 5 10 15

Glu Gln His Val Phe Ala Phe Gln Ser Gly Gln Val Leu Ala Ala Leu
20 25 30

Pro Arg Thr Ser Arg Gln Val Gln Val Leu Gln Asn Leu Thr Thr Thr
35 40 45

Tyr Glu Ile Val Leu Trp Gln Pro Val Thr Ala Asp Leu Ile Val Lys
50 55 60

Lys Lys Gln Val His Phe Phe Val Asn Ala Ser Asp Val Asp Asn Val
65 70 75 80

Lys Ala His Leu Asn Val Ser Gly Ile Pro Cys Ser Val Leu Leu Ala
85 90 95

Asp Val Glu Asp Leu Ile Gln Gln Gln Ile Ser Asn Asp Thr Val Ser
100 105 110

Pro Arg Ala Ser Ala Ser Tyr Tyr Glu Gln Tyr His Ser Leu Asn Glu
115 120 125

Ile Tyr Ser Trp Ile Glu Phe Ile Thr Glu Arg His Pro Asp Met Leu
130 135 140

Thr Lys Ile His Ile Gly Ser Ser Phe Glu Lys Tyr Pro Leu Tyr Val
145 150 155 160

Leu Lys Val Ser Gly Lys Glu Gln Ala Ala Lys Asn Ala Ile Trp Ile
165 170 175

Asp Cys Gly Ile His Ala Arg Glu Trp Ile Ser Pro Ala Phe Cys Leu
180 185 190

Trp Phe Ile Gly His Ile Thr Gln Phe Tyr Gly Ile Ile Gly Gln Tyr
195 200 205

Thr Asn Leu Leu Arg Leu Val Asp Phe Tyr Val Met Pro Val Val Asn
210 215 220

Val Asp Gly Tyr Asp Tyr Ser Trp Lys Lys Asn Arg Met Trp Arg Lys
225 230 235 240

Asn Arg Ser Phe Tyr Ala Asn Asn His Cys Ile Gly Thr Asp Leu Asn
245 250 255

Arg Asn Phe Ala Ser Lys His Trp Cys Glu Glu Gly Ala Ser Ser Ser
260 265 270

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Ser Cys Ser Glu Thr Tyr Cys Gly Leu Tyr Pro Glu Ser Glu Pro Glu
275 280 285

Val Lys Ala Val Ala Ser Phe Leu Arg Arg Asn Ile Asn Gln Ile Lys
290 295 300

Ala Tyr Ile Ser Met His Ser Tyr Ser Gln His Ile Val Phe Pro Tyr
305 310 315 320

Ser Tyr Thr Arg Ser Lys Ser Lys Asp His Glu Glu Leu Ser Leu Val
325 330 335

Ala Ser Glu Ala Val Arg Ala Ile Glu Lys Thr Ser Lys Asn Thr Arg
340 345 350

Tyr Thr His Gly His Gly Ser Glu Thr Leu Tyr Leu Ala Pro Gly Gly
355 360 365

Gly Asp Asp Trp Ile Tyr Asp Leu Gly Ile Lys Tyr Ser Phe Thr Ile
370 375 380

Glu Leu Arg Asp Thr Gly Thr Tyr Gly Phe Leu Leu Pro Glu Arg Tyr
385 390 395 400

Ile Lys Pro Thr Cys Arg Glu Ala Phe Ala Ala Val Ser Lys Ile Ala
405 410 415

Trp His Val Ile Arg Asn Val
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<210> 3
<211> 52
<212> DNA
<213> Artificial

<220>
<223> Oligonucleotide Primer

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<210> 4
<211> 60
<212> DNA
<213> Artificial

<220>
<223> Oligonucleotide Primer

<400> 4
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<210> 5
<211> 64

<212> DNA
<213> Artificial

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<223> Oligonucleotide Primer

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gtcc 60
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<210> 6
<211> 66
<212> DNA
<213> Artificial

<220>
<223> Oligonucleotide Primer

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tgtacc 60
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<210> 7
<211> 66
<212> DNA
<213> Artificial

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<223> Oligonucleotide

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atgatg 60
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<210> 8
<211> 18
<212> DNA
<213> Artificial

<220>
<223> Oligonucleotide Primer

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<210> 9
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<212> DNA
<213> Artificial

<220>
<223> Oligonucleotide Primer

<400> 9
ttggtcttgc tggaatcagt 20

<210> 10
<211> 57
<212> DNA
<213> Artificial

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<220>

<223> Oligonucleotide Primer

<400> 10

ccaagcttca tcccaacagc aattttctct agatctggtg aagctggagc tacggag

57

<210> 11

<211> 18

<212> DNA

<213> Artificial

<220>

<223> Oligonucleotide Primer

<400> 11

tgccaaaggg gcggtccc

18

<210> 12

<211> 422

<212> PRT

<213> Mus musculus

<400> 12

Met Lys Leu His Gly Leu Gly Ile Leu Val Ala Ile Ile Leu Tyr Glu
1 5 10 15

Gln His Gly Phe Ala Phe Gln Ser Gly Gln Val Leu Ser Ala Leu Pro
20 25 30

Arg Thr Ser Arg Gln Val Gln Leu Leu Gln Asn Leu Thr Thr Thr Tyr
35 40 45

Glu Val Val Leu Trp Gln Pro Val Thr Ala Glu Phe Ile Glu Lys Lys
50 55 60

Lys Glu Val His Phe Phe Val Asn Ala Ser Asp Val Asp Ser Val Lys
65 70 75 80

Ala His Leu Asn Val Ser Arg Ile Pro Phe Asn Val Leu Met Asn Asn
85 90 95

Val Glu Asp Leu Ile Glu Gln Gln Thr Phe Asn Asp Thr Val Ser Pro
100 105 110

Arg Ala Ser Ala Ser Tyr Tyr Glu Gln Tyr His Ser Leu Asn Glu Ile
115 120 125

Tyr Ser Trp Ile Glu Val Ile Thr Glu Gln His Pro Asp Met Leu Gln
130 135 140

Lys Ile Tyr Ile Gly Ser Ser Phe Glu Lys Tyr Pro Leu Tyr Val Leu
145 150 155 160

Lys Val Ser Gly Lys Glu Gln Arg Ile Lys Asn Ala Ile Trp Ile Asp

	165		170		175
Cys Gly Ile His Ala Arg Glu Trp Ile Ser Pro Ala Phe Cys Leu Trp	180		185		190
Phe Ile Gly Tyr Val Thr Gln Phe His Gly Lys Glu Asn Leu Tyr Thr	195		200		205
Arg Leu Leu Arg His Val Asp Phe Tyr Ile Met Pro Val Met Asn Val	210		215		220
Asp Gly Tyr Asp Tyr Thr Trp Lys Lys Asn Arg Met Trp Arg Lys Asn	225		230		235
Arg Ser Ala His Lys Asn Asn Arg Cys Val Gly Thr Asp Leu Asn Arg	245		250		255
Asn Phe Ala Ser Lys His Trp Cys Glu Lys Gly Ala Ser Ser Ser Ser	260		265		270
Cys Ser Glu Thr Tyr Cys Gly Leu Tyr Pro Glu Ser Glu Pro Glu Val	275		280		285
Lys Ala Val Ala Asp Phe Leu Arg Arg Asn Ile Asp His Ile Lys Ala	290		295		300
Tyr Ile Ser Met His Ser Tyr Ser Gln Gln Ile Leu Phe Pro Tyr Ser	305		310		315
Tyr Asn Arg Ser Lys Ser Lys Asp His Glu Glu Leu Ser Leu Val Ala	325		330		335
Ser Glu Ala Val Arg Ala Ile Glu Ser Ile Asn Lys Asn Thr Arg Tyr	340		345		350
Thr His Gly Ser Gly Ser Glu Ser Leu Tyr Leu Ala Pro Gly Gly Ser	355		360		365
Asp Asp Trp Ile Tyr Asp Leu Gly Ile Lys Tyr Ser Phe Thr Ile Glu	370		375		380
Leu Arg Asp Thr Gly Arg Tyr Gly Phe Leu Leu Pro Glu Arg Tyr Ile	385		390		395
Lys Pro Thr Cys Ala Glu Ala Leu Ala Ala Ile Ser Lys Ile Val Trp	405		410		415
His Val Ile Arg Asn Thr	420				

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<211> 422

<212> PRT

<213> Rattus norvegicus

<400> 13

Met Lys Leu Tyr Gly Leu Gly Val Leu Val Ala Ile Ile Leu Tyr Glu
1 5 10 15

Lys His Gly Leu Ala Phe Gln Ser Gly His Val Leu Ser Ala Leu Pro
20 25 30

Arg Thr Ser Arg Gln Val Gln Leu Leu Gln Asn Leu Thr Thr Thr Tyr
35 40 45

Glu Val Val Leu Trp Gln Pro Val Thr Ala Glu Phe Ile Glu Lys Lys
50 55 60

Lys Glu Val His Phe Phe Val Asn Ala Ser Asp Val Asn Ser Val Lys
65 70 75 80

Ala Tyr Leu Asn Ala Ser Arg Ile Pro Phe Asn Val Leu Met Asn Asn
85 90 95

Val Glu Asp Leu Ile Gln Gln Gln Thr Ser Asn Asp Thr Val Ser Pro
100 105 110

Arg Ala Ser Ser Ser Tyr Tyr Glu Gln Tyr His Ser Leu Asn Glu Ile
115 120 125

Tyr Ser Trp Ile Glu Val Ile Thr Glu Gln His Pro Asp Met Leu Gln
130 135 140

Lys Ile Tyr Ile Gly Ser Ser Tyr Glu Lys Tyr Pro Leu Tyr Val Leu
145 150 155 160

Lys Val Ser Gly Lys Glu His Arg Val Lys Asn Ala Ile Trp Ile Asp
165 170 175

Cys Gly Ile His Ala Arg Glu Trp Ile Ser Pro Ala Phe Cys Leu Trp
180 185 190

Phe Ile Gly Tyr Val Thr Gln Phe His Gly Lys Glu Asn Thr Tyr Thr
195 200 205

Arg Leu Leu Arg His Val Asp Phe Tyr Ile Met Pro Val Met Asn Val
210 215 220

Asp Gly Tyr Asp Tyr Thr Trp Lys Lys Asn Arg Met Trp Arg Lys Asn
225 230 235 240

Arg Ser Val His Met Asn Asn Arg Cys Val Gly Thr Asp Leu Asn Arg
245 250 255

Asn Phe Ala Ser Lys His Trp Cys Glu Lys Gly Ala Ser Ser Phe Ser
 260 265 270

Cys Ser Glu Thr Tyr Cys Gly Leu Tyr Pro Glu Ser Glu Pro Glu Val
 275 280 285

Lys Ala Val Ala Asp Phe Leu Arg Arg Asn Ile Asn His Ile Lys Ala
 290 295 300

Tyr Ile Ser Met His Ser Tyr Ser Gln Gln Ile Leu Phe Pro Tyr Ser
 305 310 315 320

Tyr Asn Arg Ser Lys Ser Lys Asp His Glu Glu Leu Ser Leu Val Ala
 325 330 335

Ser Glu Ala Val Arg Ala Ile Glu Ser Ile Asn Lys Asn Thr Arg Tyr
 340 345 350

Thr His Gly Ser Gly Ser Glu Ser Leu Tyr Leu Ala Pro Gly Gly Ser
 355 360 365

Asp Asp Trp Ile Tyr Asp Leu Gly Ile Lys Tyr Ser Phe Thr Ile Glu
 370 375 380

Leu Arg Asp Thr Gly Arg Tyr Gly Phe Leu Leu Pro Glu Arg Phe Ile
 385 390 395 400

Lys Pro Thr Cys Ala Glu Ala Leu Ala Ala Val Ser Lys Ile Ala Trp
 405 410 415

His Val Ile Arg Asn Ser
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<210> 14
 <211> 34
 <212> DNA
 <213> Artificial

<220>
 <223> Oligonucleotide Primer

<400> 14
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34

<210> 15
 <211> 39
 <212> DNA
 <213> Artificial

<220>
 <223> Oligonucleotide Primer

<400> 15
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39

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<210> 16
<211> 20
<212> PRT
<213> Artificial

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<223> 8-Histidine containing Peptide tag

<400> 16

Leu Glu Pro Gly Asp Asp Asp Asp Lys His His His His His His His
1 5 10 15

His Ser Gly Ser
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<210> 17
<211> 423
<212> PRT
<213> Homo sapiens

<400> 17

Met Lys Leu Cys Ser Leu Ala Val Leu Val Pro Ile Val Leu Phe Cys
1 5 10 15

Glu Gln His Val Phe Ala Phe Gln Ser Gly Gln Val Leu Ala Ala Leu
20 25 30

Pro Arg Thr Ser Arg Gln Val Gln Val Leu Gln Asn Leu Thr Thr Thr
35 40 45

Tyr Glu Ile Val Leu Trp Gln Pro Val Thr Ala Asp Leu Ile Val Lys
50 55 60

Lys Lys Gln Val His Phe Phe Val Asn Ala Ser Asp Val Asp Asn Val
65 70 75 80

Lys Ala His Leu Asn Val Ser Gly Ile Pro Cys Ser Val Leu Leu Ala
85 90 95

Asp Val Glu Asp Leu Ile Gln Gln Gln Ile Ser Asn Asp Thr Val Ser
100 105 110

Pro Arg Ala Ser Ala Ser Tyr Tyr Glu Gln Tyr His Ser Leu Asn Glu
115 120 125

Ile Tyr Ser Trp Ile Glu Phe Ile Thr Glu Arg His Pro Asp Met Leu
130 135 140

Thr Lys Ile His Ile Gly Ser Ser Phe Glu Lys Tyr Pro Leu Tyr Val
145 150 155 160

Leu Lys Val Ser Gly Lys Glu Gln Ala Ala Lys Asn Ala Ile Trp Ile

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	165		170		175
Asp Cys Gly Ile His Ala Arg Glu Trp Ile Ser Pro Ala Phe Cys Leu	180		185		190
Trp Phe Ile Gly His Ile Thr Gln Phe Tyr Gly Ile Ile Gly Gln Tyr	195		200		205
Thr Asn Leu Leu Arg Leu Val Asp Phe Tyr Val Met Pro Val Val Asn	210		215		220
Val Asp Gly Tyr Asp Tyr Ser Trp Lys Lys Asn Arg Met Trp Arg Lys	225		230		235
Asn Arg Ser Phe Tyr Ala Asn Asn His Cys Ile Gly Thr Asp Leu Asn	245		250		255
Arg Asn Phe Ala Ser Lys His Trp Cys Glu Glu Gly Ala Ser Ser Ser	260		265		270
Ser Cys Ser Glu Thr Tyr Cys Gly Leu Tyr Pro Glu Ser Glu Pro Glu	275		280		285
Val Lys Ala Val Ala Ser Phe Leu Arg Arg Asn Ile Asn Gln Ile Lys	290		295		300
Ala Tyr Ile Ser Met His Ser Tyr Ser Gln His Ile Val Phe Pro Tyr	305		310		315
Ser Tyr Thr Arg Ser Lys Ser Lys Asp His Glu Glu Leu Ser Leu Val	325		330		335
Ala Ser Glu Ala Val Arg Ala Ile Glu Lys Thr Ser Lys Asn Thr Arg	340		345		350
Tyr Thr Tyr Gly Gln Gly Ser Glu Thr Leu Tyr Leu Ala Pro Gly Gly	355		360		365
Gly Asp Asp Trp Ile Tyr Asp Leu Gly Ile Lys Tyr Ser Phe Thr Ile	370		375		380
Glu Leu Arg Asp Thr Gly Thr Tyr Gly Phe Leu Leu Pro Glu Arg Tyr	385		390		395
Ile Lys Pro Thr Cys Arg Glu Ala Phe Ala Ala Val Ser Lys Ile Ala	405		410		415
Trp His Val Ile Arg Asn Val	420				

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<211> 423

<212> PRT

<213> Homo sapiens

<400> 18

Met Lys Leu Cys Ser Leu Ala Val Leu Val Pro Ile Val Leu Phe Cys
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Glu Gln His Val Phe Ala Phe Gln Ser Gly Gln Val Leu Ala Ala Leu
20 25 30

Pro Arg Thr Ser Arg Gln Val Gln Val Leu Gln Asn Leu Thr Thr Thr
35 40 45

Tyr Glu Ile Val Leu Trp Gln Pro Val Thr Ala Asp Leu Ile Val Lys
50 55 60

Lys Lys Gln Val His Phe Phe Val Asn Ala Ser Val Val Asp Asn Val
65 70 75 80

Lys Ala His Leu Asn Val Ser Gly Ile Pro Cys Ser Val Leu Leu Ala
85 90 95

Asp Val Glu Asp Leu Ile Gln Gln Gln Ile Ser Asn Asp Thr Val Ser
100 105 110

Pro Arg Ala Ser Ala Ser Tyr Tyr Glu Gln Tyr His Ser Leu Asn Glu
115 120 125

Ile Tyr Ser Trp Ile Glu Phe Ile Thr Glu Arg His Pro Asp Met Leu
130 135 140

Thr Lys Ile His Ile Gly Ser Ser Phe Glu Lys Tyr Pro Leu Tyr Val
145 150 155 160

Leu Lys Val Ser Gly Lys Glu Gln Ala Ala Lys Asn Ala Ile Trp Ile
165 170 175

Asp Cys Gly Ile His Ala Arg Glu Trp Ile Ser Pro Ala Phe Cys Leu
180 185 190

Trp Phe Ile Gly His Ile Thr Gln Phe Tyr Gly Ile Ile Gly Gln Tyr
195 200 205

Thr Asn Leu Leu Arg Leu Val Asp Phe Tyr Val Met Pro Val Val Asn
210 215 220

Val Asp Gly Tyr Asp Tyr Ser Trp Lys Lys Asn Arg Met Trp Arg Lys
225 230 235 240

Asn Arg Ser Phe Tyr Ala Asn Asn His Cys Ile Gly Thr Asp Leu Asn
245 250 255

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Arg Asn Phe Ala Ser Lys His Trp Cys Glu Glu Gly Ala Ser Ser Ser
260 265 270

Ser Cys Ser Glu Thr Tyr Cys Gly Leu Tyr Pro Glu Ser Glu Pro Glu
275 280 285

Val Lys Ala Val Ala Ser Phe Leu Arg Arg Asn Ile Asn Gln Ile Lys
290 295 300

Ala Tyr Ile Ser Met His Ser Tyr Ser Gln His Ile Val Phe Pro Tyr
305 310 315 320

Ser Tyr Thr Arg Ser Lys Cys Lys Asp His Glu Glu Leu Ser Leu Val
325 330 335

Ala Ser Glu Ala Val Arg Ala Ile Glu Lys Thr Asn Lys Asn Thr Arg
340 345 350

Tyr Thr Tyr Gly Gln Gly Ser Glu Thr Leu Tyr Leu Ala Pro Gly Gly
355 360 365

Gly Asp Asp Trp Ile Tyr Asp Leu Gly Ile Lys Tyr Ser Phe Thr Ile
370 375 380

Glu Leu Arg Asp Thr Gly Thr Tyr Gly Phe Leu Leu Pro Glu Arg Tyr
385 390 395 400

Ile Lys Pro Thr Cys Arg Glu Ala Phe Ala Ala Val Ser Lys Ile Ala
405 410 415

Trp His Val Ile Arg Asn Val
420

<210> 19
<211> 423
<212> PRT
<213> Homo sapiens

<400> 19

Met Lys Leu Cys Ser Leu Ala Val Leu Val Pro Ile Val Leu Phe Cys
1 5 10 15

Glu Gln His Val Phe Ala Phe Gln Ser Gly Gln Val Leu Ala Ala Leu
20 25 30

Pro Arg Thr Ser Arg Gln Val Gln Val Leu Gln Asn Leu Thr Thr Thr
35 40 45

Tyr Glu Ile Val Leu Trp Gln Pro Val Thr Ala Asp Leu Ile Val Lys
50 55 60

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Lys Lys Gln Val His Phe Phe Val Asn Ala Ser Asp Val Asp Asn Val
65 70 75 80

Lys Ala His Leu Asn Val Ser Gly Ile Pro Cys Ser Val Leu Leu Ala
85 90 95

Asp Val Glu Asp Leu Ile Gln Gln Gln Ile Ser Asn Asp Thr Val Ser
100 105 110

Pro Arg Ala Ser Ala Ser Tyr Tyr Glu Gln Tyr His Ser Leu Asn Glu
115 120 125

Ile Tyr Ser Trp Ile Glu Phe Ile Thr Glu Arg His Pro Asp Met Leu
130 135 140

Thr Lys Ile His Ile Gly Ser Ser Phe Glu Lys Tyr Pro Leu Tyr Val
145 150 155 160

Leu Lys Val Ser Gly Lys Glu Gln Ala Ala Lys Asn Ala Ile Trp Ile
165 170 175

Asp Cys Gly Ile His Ala Arg Glu Trp Ile Ser Pro Ala Phe Cys Leu
180 185 190

Trp Phe Ile Gly His Ile Thr Gln Phe Tyr Gly Ile Ile Gly Gln Tyr
195 200 205

Thr Asn Leu Leu Arg Leu Val Asp Phe Tyr Val Met Pro Val Val Asn
210 215 220

Val Asp Gly Tyr Asp Tyr Ser Trp Lys Lys Asn Arg Met Trp Arg Lys
225 230 235 240

Asn Arg Ser Phe Tyr Ala Asn Asn His Cys Ile Gly Thr Asp Leu Asn
245 250 255

Arg Asn Phe Ala Ser Lys His Trp Cys Glu Glu Gly Ala Ser Ser Ser
260 265 270

Ser Cys Ser Glu Thr Tyr Cys Gly Leu Tyr Pro Glu Ser Glu Pro Glu
275 280 285

Val Lys Ala Val Ala Ser Phe Leu Arg Arg Asn Ile Asn Gln Ile Lys
290 295 300

Ala Tyr Ile Ser Met His Ser Tyr Ser Gln His Ile Val Phe Pro Tyr
305 310 315 320

Ser Tyr Thr Arg Ser Lys Cys Lys Asp His Glu Glu Leu Ser Leu Val
325 330 335

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Ala Ser Glu Ala Val Arg Ala Ile Glu Lys Thr Ser Lys Asn Thr Arg
340 345 350

Tyr Thr Tyr Gly Gln Gly Ser Glu Thr Leu Tyr Leu Ala Pro Gly Gly
355 360 365

Gly Asp Asp Trp Ile Tyr Asp Leu Gly Ile Lys Tyr Ser Phe Thr Ile
370 375 380

Glu Leu Arg Asp Thr Gly Thr Tyr Gly Phe Leu Leu Pro Glu Arg Tyr
385 390 395 400

Ile Lys Pro Thr Cys Arg Glu Ala Phe Ala Ala Val Ser Lys Ile Ala
405 410 415

Trp His Val Ile Arg Asn Val
420